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Method for the Purification of Blood by Means of Hemodialysis and/or
Hemofiltration and Apparatus for Performing said Method

Claims

1. A method for blood purification by means of hemodialysis and/or hemofiltration, wherein to the blood in the extra-corporeal circuit (10) of a hemodialysis and/or hemofiltration device a substitution solution is added upstream as well as downstream of the hemodialyser and/or hemofilter (20),

characterized in

that one or several of the operational and/or blood parameters are controlled and that the control is carried out using at least one of the infusion rates ($Q_{s\text{pre}}$, $Q_{s\text{post}}$) of the substitution solutions supplied upstream or downstream of the hemodialyser and/or hemofilter (20).
2. The method according to claim 1, characterized in that the operational and/or blood parameters are the trans-membrane pressure (TMP) and/or the blood density and/or the hematocrit value (HKT) of the blood.

3. The method according to claim 1 or 2, characterized in that the infusion rate (Q_{spre}) of the substitution solution supplied upstream of the hemodialyser and/or the hemofilter (20) is preferably increased relative to the infusion rate (Q_{spost}) supplied downstream of the hemodialyser and/or the hemofilter with increasing trans-membrane pressure (TMP) and/or increasing blood density and/or increasing hematocrit value (HKT) of the blood.
4. The method according to one or several of claims 1 through 3, characterized in that the operational and/or blood parameters are detected and controlled continuously.
5. The method according to one or several of claims 1 through 4, characterized in that the infusion rates (Q_{spre} , Q_{spost}) of the substitution solutions are chosen such that a substantially stationary limiting membrane is formed on the side of the membrane of the hemodialyser and/or hemofilter (20) facing the chamber through which the blood flows.
6. The method according to claim 5, characterized in that after termination of the treatment the limiting membrane is dissolved by changing the relation of the infusion rates (Q_{spre} , Q_{spost}) of the substitution solutions in the blood stream.
7. A hemodialysis and/or hemofiltration apparatus with an extra-corporeal circuit (10) for receiving blood to be purified as well as with a hemodialyser and/or hemofilter (20) communicating with the blood circuit (10), wherein upstream and downstream of the hemodialyser and/or hemofilter (20) the blood circuit (10) has at least one supply line (12, 14), respectively, for supplying a substitution fluid,

characterized in

that a control unit (100) for controlling one or several operational and/or blood parameters is provided, wherein the control unit is designed such that the control is carried out by means (13, 15) of at least one of the infusion rates (Q_{spre} , Q_{spost}) of the substitution solution.

8. The hemodialysis and/or hemofiltration apparatus according to claim 7, characterized in that measuring devices are connected to the control unit for recording the operational and/or blood parameters.
9. The hemodialysis and/or hemofiltration apparatus according to claim 8, characterized in that said measuring devices comprise pressure sensors (40) arranged in the extra-corporeal circuit (10) and/or in the dialysis-fluid circuit (30) upstream and/or downstream of the hemodialyser and/or hemofilter (20), respectively.
10. The hemodialysis and/or hemofiltration apparatus according to claim 8 or 9, characterized in that the measuring devices comprise sensors (50) arranged in the extra-corporeal circuit (10) upstream and/or downstream of the hemodialyser and/or hemofilter (20) for the detection of the hematocrit value (HKT) of the blood.
11. The hemodialysis and/or hemofiltration apparatus according to one of claims 8 to 10, characterized in that the measuring devices comprise sensors arranged in the extra-corporeal circuit (10) upstream and/or downstream of the hemodialyser and/or hemofilter (20) for the detection of the blood density.
12. The hemodialysis and/or hemofiltration apparatus according to one of claims 7 to 11 characterized in that the means for controlling the at least one of the infusion rates (Q_{spre} , Q_{spost}) are pumps (13, 15) in the supply lines (12, 14).

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